

REMARKS

In this paper, claims 1 and 18 have been amended, claim 3 has been canceled, and claims 38 and 39 have been added. After entry of the above amendment, claims 1, 2 and 4-39 are pending.

Claim 27 was rejected under 35 U.S.C. §112 as being indefinite. This basis for rejection is respectfully traversed. Antecedent basis for the phrase “the cumulative information” appears in claim 18, line 3.

Claims 32, 33 and 36 were rejected under 35 U.S.C. §112 as being indefinite. Claims 32, 33 and 36 expressly recite “physical” detachment.

Claims 1-6, 11-16, 18-20, 24, 30-31, 34-35 and 37 were rejected under 35 U.S.C. §103(a) as being unpatentable over Downs (US 5,629,668) in view of Campagnolo (US 6,757,567). Furthermore, claims 13, 20-23 and 25-29 were rejected under 35 U.S.C. §103(a) as being unpatentable over Downs in view of Campagnolo. These bases for rejection are addressed together and are respectfully traversed.

Downs discloses a conventional data display unit (10) for a bicycle wherein a computer (14) calculates and displays information on a display (16). The computer (14) is housed together with the display (16). Column 2, lines 52-58. The various figures are schematics and do not represent the actual placement of components. Downs neither discloses nor suggests a *separate* display component *housed within a case member* and a computing component disposed *outside of the case member*, wherein the computing component *calculates cumulative information produced from a bicycle-related running condition*, and wherein the display component *displays the cumulative information calculated by the computing component* as recited in claim 1. Furthermore, Downs neither discloses nor suggests a computing component disposed outside of a case member and structured to be mounted to the bicycle independently of a display component, wherein the display component is structured to be detachably attached to the bicycle independently of the computing component so that the computing component may remain attached to the bicycle after the display component is removed as recited in claim 1.

Campagnolo discloses a bicycle multiprocessor control system with a main processor (101) mounted in a display block (10), a second processor (201) mounted in a bracket (20) that supports display block (10) (column 4, lines 58-60), and further processors (31, 32) mounted in a block (30) attached to the down tube of the bicycle frame (column 3, lines 49-52). The main processor (101) in display block (10) performs all of the functions of a typical cycle computer as stated at column 4, lines 35-41. Thus, Campagnolo also neither discloses nor suggests a *separate* display component *housed within a case member* and a computing component disposed *outside the case member*, wherein the computing component *calculates cumulative information produced from a bicycle-related running condition*, and wherein the display component *displays the cumulative information calculated by the computing component* as recited in claim 1.

Furthermore, Campagnolo neither discloses nor suggests a computing component that calculates cumulative information disposed outside of a case member and structured to be mounted to the bicycle independently of a display component, wherein the display component is structured to be detachably attached to the bicycle independently of the computing component so that the computing component may remain attached to the bicycle after the display component is removed as recited in claim 1. As stated at column 4, lines 35-41, removable block 10 functions as a typical cycle computer. Thus, when display block 10 is removed, it takes main processor (101) (the processor that calculates any cumulative information) with it, contrary to the requirements of claim 1.

In any event, the examiner's statement at the bottom of page 5 of the office action illustrates the true motivation of one of ordinary skill in the art:

“to make the display containing computing components *inside* of a monitor's case for an advantage of reducing the signal lines from such computing component to a display device, and also keeping that computing component in a secure place.” (Emphasis added)

In other words, the prior art teaches *away* from the claimed subject matter because one of ordinary skill in the art would be averse to the additional wiring required and the perceived lack of

security. The applicant does exactly what one of ordinary skill in the art would *not* do: separate the cumulative computing component from the display case.

The following addresses further points made in the office action.

Item 4 at page 1 of the office action rewrites claim 1 to recite “a display component housed within a case member, and a computing component is disposed outside of the case member.”

However, claims must be examined on the basis of what they actually recite. It is improper to create a hypothetical broad claim by deleting or substituting terms and then proceed to reject that hypothetical claim as if it were the claim actually presented for examination.

Furthermore, the underpinnings of the reasons set forth in item 4 at page 1 of the office action are not rational. For example, the office action states that a motivation to modify the Downs cycle computer comes from a desire “to make the display as small as possible or to fit to a particular design.” However, display size is not dictated by the size of the processor, but by the size of the display screen. A view of the inside of any television or computer can easily verify this fact. Furthermore, cycle computer displays already are only one to two inches square (or rectangular). Given the information displayed as shown in Fig. 5 of the application, there is no reason to make the display even smaller, thus making the information more difficult to read during the typical vigorous movements of the bicycle during riding. The statement in the office action that “this practice is well known,” insofar as it is intended to mean that it is well-known in the bicycle field to separate the cumulative information processor from the display “to make the display as small as possible or to fit to a particular design” is hereby challenged. The examiner may not, because he or she doubts that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in the factual basis for rejecting claims. Ex parte Haymond, 41 USPQ2d 1217 (BdPatApp&Int 1996).

Item 4 also refers to applicant’s previous assertion that the display component (16) in Downs does not calculate anything, and that all calculations are performed by computer (14), which is not part of display component (16). The office action indicates a belief that such an assertion constitutes some kind of admission that supports an obviousness rejection. That is incorrect. The fact that

computer (14) is not part of display component (16) does not equate with computer (14) being disposed *outside of a case member* that houses display component (16). There simply is no disclosure or suggestion in Downs to dispose a computing component *outside* of a case member of a *separate* display component.

The office action then states that placing the computing component external to the display device does not provide any different utility. However, Section 103 does not require a “different utility,” nor is there any case law that sets forth such a requirement or even defines what the term “different utility” means.

Furthermore, there are many unexpected advantages that result from the claimed subject matter. For example, page 15, paragraph [0048] of the specification states that the total distance OD is constantly computed by first control portion (35) of first control unit (30), which tends to be more permanently mounted on the bicycle, and that the computed total distance OD is displayed on LCD (56) in third control unit (32). The total distance OD is not computed by third control unit (32) at the display end of the cycle computer as in both Downs and Campagnolo. As a result, the total distance OD can be displayed properly even when third control unit (32) and its accompanying LCD (56) are replaced. Such information is not lost forever as in the prior art. Similarly, since first control unit (30) can continue to calculate the cumulative information such as total distance even when third control unit (32) and LCD (56) are detached from the bicycle, the rider can still ride the bicycle and then learn the total distance ridden when the existing or new third control unit (32) and LCD (56) are reattached. This can be extremely valuable for training purposes. The claimed subject matter also is very valuable to bicycle rental organizations that rely on miles ridden by a particular bicycle to determine when to service the bicycle. A fleet of bicycles can share and interchange a smaller number of displays and still know when a bicycle is due for service. Furthermore, when a particular rider owns a plurality of bicycles, the total distance ridden by each bicycle can be properly displayed with just one third control unit (32) and LCD (56).

An additional advantage of the claimed separate components is that a potential thief cannot steal the critical components merely by detaching the display. In both Downs and Campagnolo the cumulative information processor is disposed in the associated display case. Thus, a potential thief

merely has to detach the display unit from the mounting bracket and then simply obtain the wiring harness and mounting bracket assembly (with or without the simple I/O interfaces in the Campagnolo system) as replacement parts, for example. As with desktop computers, the value of the computing system is in the motherboard, the processor, and the other main components, not in external modems or wireless adapters. Thus, the claimed invention makes the display case less valuable, with the major computing components “more permanently mounted to the bicycle” as stated at page 15, paragraph [0048], lines 1-3.

As for claim 2, neither Downs nor Campagnolo discloses or suggests a cumulative information memory disposed outside of the case member for periodically storing the cumulative information calculated by the computing component.

As for claims 4, 6 and 34, Downs discloses the use of a battery (26) to power computer (14), and Campagnolo uses a separate battery (10B) to power display unit (10). Neither Downs nor Campagnolo discloses or suggests power being communicated *from* the computing component *to* the display component through an *information* output component of the computing component and an *information* input component of the display component as recited in claims 4 and 34, and certainly not in a one-way manner as recited in claim 6.

As for claim 5, Downs does not disclose the communication of power through a single communication line. The text is silent about the physical components used to communicate power from one component to another. Furthermore, it is a fundamental rule of schematics that blocks and lines are conceptual only and do not represent actual physical structure.

As for claim 13, neither Downs nor Campagnolo discloses or suggests a display component that stores cumulative information communicated from the computing component in a cumulative information memory as reference cumulative information in response to operation of a start input component. Contrary to statements made at page 9 in the office action, *how* an electronic component performs a particular function is a conventional basis for patentability of electronic components in general and programmed devices in particular, especially when calculations are applied to specific data fields.

As for claim 14, all computing in the Downs device is performed by microprocessor (24). There is no evidence that control device (28) referenced in the office action makes any calculations of information displayed on display (16). The same appears to be true with Campagnolo's main processor (101). Neither Downs nor Campagnolo discloses or suggests a display component that calculates additional cumulative information using reference cumulative information and subsequent cumulative information communicated from *another* computing component.

Independent claim 18 recites, *inter alia*, a receiver for receiving cumulative information calculated by a computing component from a bicycle-related running condition, a reference information memory for storing first reference information, a start input component for initiating computation of first additional cumulative information, and a display component that calculates the first additional cumulative information from the cumulative information received from the computing component and displays the first additional cumulative information. Insofar as Downs' microprocessor (24) is interpreted to be a receiver, then microprocessor (24) does not receive cumulative information calculated by a computing component. Microprocessor (24) receives only magnetic pulse information from sensor assembly (12). Similarly, insofar as Campagnolo's main processor (101) is interpreted to be a receiver, then main processor (101) does not receive cumulative information calculated by a computing component. Main processor (101) receives only magnetic pulse information from sensors 4l, 4k, 4n. In any event, insofar as magnetic pulses are considered "cumulative information," then neither Downs' display (16) nor Campagnolo's display (103) displays magnetic pulse counts.

As for claims 20-29, neither Downs nor Campagnolo discloses or suggests the first reference information comprising the cumulative information as recited in claim 20; the first additional cumulative information being calculated by performing a subtraction with the subsequent cumulative information and the first reference information as recited in claim 21; the cumulative information (received by the receiver recited in claim 18) comprising total distance traveled by the bicycle, wherein the first additional cumulative information comprises travel distance as recited in claim 22; a reference information input component for inputting second reference information (as recited in claim 24) combined with a display component that calculates second additional cumulative information from the first additional cumulative information and the second reference information as

recited in claim 25; wherein the second additional cumulative information is calculated by performing a subtraction with the first additional cumulative information and the second reference information as recited in claim 26; wherein the cumulative information comprises total distance traveled by the bicycle, wherein the first additional cumulative information comprises travel distance, wherein the second reference information comprises a *target travel distance*, and wherein the second additional cumulative information comprises *remaining travel distance* as recited in claim 27 (discussed in Appellant's specification at paragraph [0052]); or a display component structured to display the total distance traveled by the bicycle, the travel distance, and the *remaining travel distance* as recited in claim 28.

As noted above, contrary to statements made in the final office action, *how* an electronic component performs a particular function is a conventional basis for patentability of electronic components in general and programmed devices in particular, especially when calculations are applied to specific data fields.

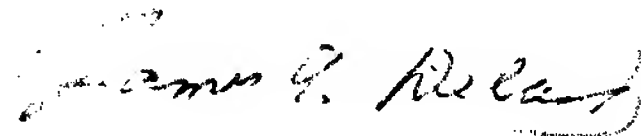
The office action also states at the bottom of page 9 that it would be obvious to *add* an extra computing component with a display component "for a benefit of saving required spaces or to increase computing capabilities." However, there is no basis to say that adding a further processor to the Downs or Campagnolo devices (thereby increasing the number of components) would *save* space in any manner, or that there is any reason to increase computing capabilities by adding a processor to the display as opposed to merely adding programming to the existing microprocessor (24) or main processor (101). The only reason to do so comes from the applicants' specification.

Claim 9 was rejected under 35 U.S.C. §103(a) as being unpatentable over Downs and Campagnolo in view of Kitamura (US 6,418,041). This basis for rejection is respectfully traversed for the same reasons noted above.

Claim 17 was rejected under 35 U.S.C. §103(a) as being unpatentable over Downs and Campagnolo in view of Quintilian (US 4,319,129). This basis for rejection is respectfully traversed for the same reasons noted above.

Accordingly, it is believed that the rejections under 35 U.S.C. §103 and §112 have been overcome by the foregoing amendment and remarks, and it is submitted that the claims are in condition for allowance. Reconsideration of this application as amended is respectfully requested. Allowance of all claims is earnestly solicited.

Respectfully submitted,



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